

REMARKS

In the non-final Office Action claims 1-8 and 10-17 are pending and rejected. Herewith Applicant amends independent claim and dependent claims 2-4, 6 and 8 and adds no new claims.

Applicant respectfully requests entry and favorable consideration of the amendments and remarks presented herewith.

Claim Rejections Under 35 U.S.C. §103

Claims 1-8 and 10-17 stand rejected as allegedly being obvious the '889 patent to Chinchoy in view of the '392 patent to Ferek-Petric (Ferek-Petric).

Applicant respectfully suggests that neither Chinchoy nor Ferek-Petric discloses or suggests the invention claimed herein. Specifically, neither reference offers any guidance or disclosure relating to the notion of using a single tensiometric sensor to deliver ventricular (cardiac) resynchronization therapy or CRT. Since the foregoing therapy is specifically claimed in the appended, amended claim set, the presently constituted obviousness rejection fails and should be withdrawn.

For example, Chinchoy specifically notes that the LVA (left ventricular lateral free wall acceleration) signals relate to the left ventricle and if a right ventricular signal is desired, then an additional wall motion sensor must be employed. As set forth in Chinchoy in relation to FIG. 2 (at column 9, line 55 to column 10, line 7):

As such, input signal processing circuit 108 further includes signal processing circuitry for receiving, amplifying, filtering, averaging, digitizing or otherwise processing the LV wall acceleration sensor signal. **If additional acceleration or other wall motion sensors are included in the associated lead system, for example a RV wall motion sensor, additional wall motion signal processing circuitry may be provided as needed.** Acceleration signal processing circuitry is further provided for detection and/or determination of one or more acceleration signal characteristics such as maximum and minimum peak amplitudes, slopes, integrals, or other time or frequency domain signal characteristics that may be used as indices of acceleration. Acceleration data from an LV lateral wall acceleration sensor signal are made available to control and

timing system 102 via LV MOTION signal line for use in algorithms performed for identifying pacing intervals producing optimal LV acceleration. **If an RV wall motion sensor is present, an additional RV MOTION signal line provides RV wall motion signal data to control and timing system 102.**

Thus, Chinchoy clearly *teaches away* from the claimed invention and as such fails to provide the necessary support for the rejection formulated by the Examiner. In sum, Chinchoy cannot support a *prima facie* obviousness rejection and the rejection should be withdrawn. The claimed invention teaches use of a single tensiometric sensor for providing essentially global cardiac activity signals for use in a bi-ventricular pacing therapy. Chinchoy merely maximizes left ventricular lateral wall motion at a specific time (i.e., during the isovolumic contraction phrase of the left ventricle).

For example, the Examiner cites FIG. 7 of Chinchoy in support of the notion that the signal identified as LVA (left ventricular lateral free wall acceleration) in Chinchoy provides a global cardiac activity-motion signal. However, inspection of Chinchoy reveals that this statement does not hold true especially in regard to atrial activity (from column 14, lines 9-24):

Methods included in the present invention are particularly well-suited for optimizing the inter-ventricular (V--V) pacing interval during cardiac resynchronization therapy. The inventor of the present invention has found that the amplitude of the first peak of the LVA signal during isovolumic contraction is dependent on the V--V interval during atrial-biventricular pacing **and independent of the atrial-ventricular (A-V) interval.**

FIG. 7 is a set of graphs displaying the LVA signal acquired during atrial-biventricular pacing at varying A-V and V--V intervals. Results from testing A-V intervals of 140, 170 and 200 ms are shown in the graphs moving from top to bottom with each column representing a fixed V--V interval. Results from testing V--V intervals of left-led pacing by 20 ms (-20 ms), simultaneous pacing of the left and right ventricles (0 ms), and right-led pacing by 20 ms (+20 ms) are shown in the graphs moving from left to right with each row representing a fixed A-V interval. The LVA signal is seen to vary in amplitude and morphology with varying V--V intervals (moving left to right). The LVA signal is seen to be unchanged with varying A-V intervals (moving from top to bottom). The maximum

amplitude of the first LVA peak occurring during isovolumic contraction is indicated in each graph as A.sub.1. (**emphasis added.**)

Applicants respectfully assert that upon entry of this Amendment all presently-pending claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims.

Specifically, the claims have been amended so that they include limitations not found in the prior art (alone or in combination).

Please charge any additional fees or credit any overpayment to deposit account number 13-2546. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Respectfully submitted,

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Date

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